THE CLAIMS

What is claimed is:

1. A method of preparing a surface of a semiconductor wafer to make it epiready which comprises:

annealing the wafer in an oxidizing atmosphere to condition the surface; and

polishing the conditioned surface of the wafer with an abrasive based on particles of colloidal silica in order to provide a wafer surface that is suitable for growing an epitaxial layer thereon.

2. The method of claim 1 wherein the surface of the wafer comprises SiC.

3. The method of claim 2 wherein the wafer comprises a SiC surface layer that is bonded to a semiconductor substrate.

4. The method of claim 1 wherein the annealing is conducted at a temperature of about 1000°C to about 1300°C.

5. The method of claim 4 wherein the annealing is conducted for about 1 hour to about 3 hours.

6. The method of claim 1 which further comprises at least one of deoxidizing the wafer surface or utilizing an RCA (SC1, SC2) type chemical cleaning step prior to polishing.

7. The method of claim 6 wherein the wafer surface is deoxidized with hydrofluoric acid.

8. The method of claim 1 further comprising chemically cleaning the wafer surface prior to polishing.

9. The method of claim 8 wherein the wafer surface is cleaned with hydrofluoric acid.

10. The method of claim 1 wherein the colloidal silica particles used for polishing the wafer surface include SYTON W30 type colloidal silica.

11. The method of claim 1 wherein the polishing is conducted with a polishing head that is rotated at about 10 rpm to about 100 rpm.

12. The method of the claim 11 which further comprises applying a pressure of about 0.1 bar to about 1 bar to the polishing head during rotation.

13. The method of claim 1 which further comprises polishing the wafer surface for about 15 minutes to about 30 minutes.

14. The method claim 1 wherein the polishing is conducted with an IC1000 type polishing pad.

15. The method of claim 1 further comprising etching the wafer surface with ions prior to polishing.

16. The method of claim 1 wherein the polishing is conducted to make the wafer surface suitable for homoepitaxy or heteroepitaxy.

17. The method of claim wherein the polishing is conducted to provide a surface roughness of less than 15 angstroms RMS.

18. The method of claim 1 which further comprises depositing an epitaxial layer upon the polished wafer surface.